

REMARKS

Claims 1, 3, 5, 6, 9, 10, 13 and 16 have been amended. Thus, claims 1-16 are pending in the present application. Support for recitation of "a fine particulate toner dispersed in a liquid vehicle together with a binder" in claims 1, 9, 10 and 16 may be found in the specification at page 5, lines 24-25. The remainder of the claim amendments address formal issues unrelated to patentability, such as Markush language, replacement of "characterized in that" with --wherein--, and replacement of "the said" with --said--. Thus, no new matter has been added. Reconsideration and withdrawal of the present rejections in view of the comments presented herein are respectfully requested.

Rejection under 35 U.S.C. §112, second paragraph

Claim 16 was rejected under 35 U.S.C. §112, second paragraph, based on alleged lack of antecedent basis for recitation of "the image produced by the toner" in line 2 of the claim. Claim 16 as amended recites --a toner-- rather than "the toner", indicating that this term is introduced for the first time at this location in the claim. Thus, antecedent basis for "toner" is not required.

In view of the claim amendment, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. §112, second paragraph.

Rejection under 35 U.S.C. §102(b)

Claims 1-16 were rejected as being anticipated by Nagashima (US 4,148,968). In order for a claim to be anticipated by a reference, each element of the claim must be found within the reference.

There are two main types of digital printing press, both of which use an electro-photographic imaging process. The first type uses a dry toner powder, similar to that used in conventional photocopiers. The second type, with which the present invention is concerned, uses a liquid toner in which pigmented toner particles are suspended in a carrier liquid, together with a binder. In use, the toner particles are fixed by the binder to the paper surface, producing the printed image

The pending claims relate to a liquid toner composition, and to use of this composition in a digital printing press, wherein the liquid toner is combined with a security ingredient which is retained on the substrate during fraudulent alteration or removal of the image. As described in

the present specification at pages 1-3, digital presses are widely used in the printing industry as an alternative to traditional offset presses. They are particularly useful for short print runs, typically of 800-3000 copies, and have an advantage over traditional presses because the image is generated digitally, thus avoiding the need to manufacture printing plates. Digital presses are also distinguished from ordinary desktop laser printers primarily by their ability to print large numbers of copies at a high speed and a comparatively low cost.

Nagashima does not disclose a liquid toner composition for use in a digital press. Nonetheless, in order to more clearly distinguish the claimed invention from Nagashima, claims 1, 9, 10 and 16 have been amended to include components of a liquid toner digital press imaging composition: namely, a fine particulate toner dispersed in a liquid vehicle together with a binder.

The composition recited in claim 1 includes both a particulate toner, which produces a toner image, and a security ingredient comprising a reactant that is reactable in use with a complementary reactant carried by the printable substrate so as to be detectably retained in or on the substrate.

The composition of claim 1 therefore includes two separate imaging components:

1. "A fine particulate toner dispersed in a liquid vehicle together with a binder;" and
2. "A security ingredient which is a reactant reactable in use with a complementary reactant carried by a printable substrate."

In use, the fine particle toner is bound to the surface of the substrate to produce a toner image, and the security ingredient is detectably retained in or on the substrate.

In contrast to the invention recited in Claim 1, the toner compositions described in Nagashima are used in an imaging process in which an image is produced by the reaction of a first reactant in the toner composition with a second reactant on the substrate. The toner composition of Nagashima does not include toner particles, and does not produce a toner image on the surface of the substrate, as presently claimed. In fact, the primary aim of the invention described in Nagashima is to avoid the use of a pigmented toner (in order to avoid the problems described at column 1, lines 29-58). In addition, Nagashima does not disclose a liquid toner composition comprising a fine particulate toner dispersed in a liquid vehicle together with a binder.

The toner composition described in Nagashima includes only a single imaging component, which produces an image on the substrate by the reaction of the two reactants. It

does not produce two images, namely a toner image and a reactant image as recited in the present claims.

The present invention provides an improvement in the security of documents printed in a digital printing press. In some cases, a conventional toner image may be removed from the substrate by careful scraping with a blade. The security ingredient recited in the present claims produces a second image based on a reaction between a color former in the liquid toner composition and a co-reactant contained within the substrate. The color former penetrates the substrate, producing an image that lies within the surface of the paper and is difficult to remove by scraping.

Nagashima neither discloses nor suggests the topic of security of a printed document, and therefore cannot possibly provide any guidance to one of skill in the art to arrive at the claimed invention. In the present invention, the second image produced by the security ingredient is formed by a solvent reaction. The development of the color is performed by a solvent that forms part of the liquid toner composition. It is therefore possible to use non-melting reactants such as acid-washed montmorillonite clays, as discussed in the present specification which is the basis of the print formation process used in pressure sensitive copying papers. Nagashima uses a thermal reaction, which depends on the melting of a reactant and a co-reactant and requires heating of the paper by a fuser roll after printing. Without the fusing operation, no reaction would take place and no image would be formed. Nagashima therefore uses a process that is based on thermal printing technology. The mechanism of print formation in Nagashima is thus completely different from that of the present invention.

Thus, the present claims recite elements which are neither disclosed or suggested by Nagashima. In view of the amendments and comments presented above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. §102(b).

CONCLUSION

Applicants submit that all claims are in condition for allowance. Should there be any questions concerning this application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: 

Neil S. Bartfield, Ph.D.
Registration No. 39,901
Agent of Record
Customer No. 20,995
(619) 235-8550